WHAT IS CLAIMED IS:

1. A filter which includes at least one filter section comprising a plurality of hollow, elongated filter elements disposed on a hollow manifold, with said manifold connected to a hollow filtrate conduit wherein the interior of said elements, manifold and conduit are in fluid communication and wherein each said filter element has a wall at least a portion of which is permeable to the passage of liquid therethrough, but not solids, from outside said element to said hollow interior.

2. A filter according to claim 1 wherein said filter elements are vertically disposed and are laterally spaced and arranged on said manifold.

3. A filter according to claim 2 wherein said manifold includes at least one horizontal wall on which said elements are laterally spaced apart and arranged across the outer surface of said wall.

4. A filter according to claim 3 wherein said manifold has two horizontal walls, an upper and a lower wall and wherein said elements are laterally spaced apart and arranged across the outer surface of both of said walls.

5. A filter according to claim 4 wherein said elements comprise sintered metal.

6. A slurry reactor comprising a vessel enclosing within a slurry comprising particulate solids in a slurry liquid and a filter for separating said liquid from said particles and removing a portion of said liquid from said reactor, wherein said filter is removably secured in said reactor by means which permit it to be removed vertically upward and out the top of said reactor.

7. A slurry hydrocarbon synthesis reactor according to claim 6.

8. A reactor according to claim 6 wherein said filter has a surface to volume ratio of at least 4.3 ft^{-1}.

9 A slurry hydrocarbon synthesis reactor according to claim 8.

10. A reactor according to claim 9 wherein said filter has a surface to volume ratio of at least 5.9 ft^{-1}.

11. A slurry hydrocarbon synthesis process for forming hydrocarbons comprising:

(a) reacting a synthesis gas comprising a mixture of H_2 and CO in the presence of a solid, particulate hydrocarbon synthesis catalyst in a slurry in a hydrocarbon synthesis reactor at reaction conditions effective to form hydrocarbons, at least a portion of which are liquid at said reaction conditions, wherein said slurry comprises said catalyst and gas bubbles in a hydrocarbon slurry liquid, and wherein said slurry hydrocarbon liquid comprises said liquid hydrocarbons;

(b) contacting said slurry with a filter comprising at least one filter section which includes a plurality of hollow filter elements arrayed across a manifold connected to a filtrate conduit, with the interior of the elements, manifold and conduit in fluid communication, and wherein the wall separating the interior of the elements from the slurry is permeable to said slurry hydrocarbon liquid but not said slurry solids;

(c) passing said slurry hydrocarbon liquid through said filter element walls and into said interior of said elements as a filtrate and then successively passing said filtrate through the interior of said manifold and said filtrate conduit, and

(d) passing said filtrate from said conduit out of said reactor.

12. A process according to claim 11 wherein said filter is immersed in said slurry.

13. A process according to claim 12 wherein said filter is in either said reactor or in an external filtration vessel.

14. A process according to claim 13 wherein said filter has an area to volume ratio of at least 4.3 ft^{-1}.

15. A process according to claim 14 wherein said filter is removably secured in said reactor or vessel by means which permit it to be removed vertically upward and out the top of said reactor.

16. A process according to claim 15 wherein at least a portion of said filtrate is upgraded to more valuable product by fractionation and/or one or more conversion operations.

17. A process according to claim 16 wherein said filter has an area to volume ratio of at least 5.9 ft^{-1}.

18. A process according to claim 11 wherein at least a portion of said filtrate is upgraded to more valuable product by fractionation and/or one or more conversion operations.